

**REMARKS**

Favorable reconsideration of this application in light of the preceding amendments and the following remarks is requested.

Claim 4 having been canceled and no claims added, the Applicants submit that 37 claims, specifically claims 1-3 and 5-38, remain pending in this application and further, in light of the Applicants' prior election, claims 12, 13, 18-27 and 32-38 have been withdrawn from consideration by the Examiner. Accordingly, the Applicants submit that claims 1-3, 5-11, 15-17 and 29-31 remain under consideration in this application.

The Applicants note with appreciation the Examiner's acknowledgement that certified copies of all priority documents have been received by the USPTO. Action Summary at 12.

**Obligations under Rule 56**

The Applicants again acknowledge their obligations under 37 C.F.R. § 1.56 with regard to the inventorship of the claims remaining in the application in light of the Applicants' previous election. The Applicants, however, submit that no correction of inventorship is warranted by the amendments to the claims reflected above.

**Rejections Under 35 U.S.C. § 112**

Claims 2, 6, 8, 15, 17, 29 and 31 stand rejected under 35 U.S.C. § 112, second paragraph, as indefinite and incomplete for failing to end with a period. The Applicants submit that the amendments to claims 2, 6, 8, 15, 17, 29 and 31 noted above are sufficient to remedy this oversight, and request that this rejection be reconsidered and withdrawn accordingly.

Claims 1-11, 14-17 and 28-31 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement, specifically with respect to the recitation in claim 1 that the claimed surfactant has a molecular weight of less than 5,000 is new matter. The Applicants submit that the amendments to the claims reflected above are sufficient to identify specifically those surfactant compounds for which the Applicants are seeking protection by their structure, each of which, coincidentally, has a M.W. of less than 5000. The Applicants submit that these amendments are sufficient to comply with the requirements of 35 U.S.C. § 112 and request that this rejection be reconsidered and withdrawn accordingly.

The Applicants further contend, therefore, that the identified compounds were fully supported by the original disclosure and are much smaller compounds than those taught and preferred by Lee et al.'s 2002 article entitled *Effects of Nonionic Surfactants on Oxide-to-Polysilicon Selectivity during Chemical Mechanical Polishing* ("Lee"). The Applicants

maintain, therefore, that the original disclosure fully and completely enables one of ordinary skill in the art to practice the invention as claimed above.

**Rejections Under 35 U.S.C. § 102(b)**

Claim 1-2 are rejected under 35 U.S.C. § 102(b) as anticipated by Mizutari et al.'s JP 2001-110,760 ("Mizutari").

The Applicants submit that contrary to the suggestion provided in the Action, Action at 3, allegations, there is no suggestion in Mizutari's Abstract regarding the presence of a second surfactant. The Applicants also submit that a general allegation regarding the presence of the claimed elements in the applied reference, *i.e.*, "discussed in general on pages 1-6," does not constitute an identification of the relevant teachings of the prior art on which the Examiner is relying to teach each element of the claimed invention. To the extent that the Examiner contends that each element of claims 1 and 2 is found in Mizutari, the Applicants request more precise identification of the portions of the disclosure that are alleged to support such a contention so that they may have a full and fair opportunity to understand and address the basis for the broad conclusory statements provided in the Action.

The Applicants further note that Mizutari is directed to the polishing of raw silicon wafers, *i.e.*, substrates that will have a surface of only single crystal silicon. The Applicants suggest, therefore, that one of ordinary skill in the art would not look to or understand Mizutari to be relevant or helpful to in-process CMP processing in which multiple material surfaces will

be exposed to the CMP slurry. The Applicants, therefore, contend that Mizutari cannot fairly be said to teach the addition of a second surfactant that is capable of “selectively forming a second passivation layer that will reduce a removal rate of silicon nitride or silicon oxide during the chemical-mechanical polishing” as recited in claim 2.

The Applicants request, therefore, that this rejection be reconsidered and withdrawn.

**Rejections Under 35 U.S.C. § 103(a)**

Claims 1-11, 15-17 and 29-31 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Yoshida et al.’s Japanese Patent No. 10-102,040 (“Yoshida”) for the reasons detailed in the Action at pages 6-7. The Applicants traverse this rejection.

As with Mizutani, the Applicants note that the Yoshida Abstract is notably silent as to the specifics of the disclosed invention. However, unlike Mizutani, the Applicants have not been provided with the referenced “pages 1-4” of the Yoshida reference, nor did any such a document appear to be available on the USPTO’s Image File Wrapper (IFR) system. Accordingly, the Applicants maintain that the present rejection is not supported by the text of the provided Abstract. Further, the Applicants contend that rejections not fully supported by Yoshida’s Abstract are *prima facie* improper as the Applicants have not yet been afforded a full and fair opportunity to review and evaluate the alleged textual support for the asserted rejection.

The Applicants also contend that Yoshida's generic reference to nonionic surfactants, which are simply included along with organic polymers, cationic surfactants and amines as alternative dispersing agents for the disclosed ceria abrasive particles, cannot fairly be said to teach or suggest to one of ordinary skill in the art the use of the specific nonionic surfactants encompassed by the pending claims as a passivation agent for polysilicon surfaces.

Absent some specific teaching with regard to the properties of the nonionic surfactants used by Yoshida, the Applicants maintain that nothing has yet been identified in Yoshida's disclosure that could fairly be characterized as sufficient to lead or motivate one of ordinary skill in the art to identify or select the claimed compounds. Indeed, the Applicants suggest that one skilled in the art relying on Yoshida would have to 1) appreciate that of the identified dispersants may have some particular utility as a passivation agent for polysilicon and 2) begin testing the tens of thousands or more of "dispersant" compounds encompassed by Yoshida's broad categories to identify those with the requisite functionality. The Applicants maintain that such a procedure could lead to the identification of, *e.g.*, the nonionic polymer surfactants taught by Lee which had a ***minimum*** molecular weight of 100,000 grams/mole with the ***best selectivity*** being achieved with the ***highest molecular weight*** surfactants, *i.e.*, those at 8,000,000 grams/mole. The Applicants contend, therefore, that one of ordinary skill in the art could certainly have relied on Lee for guidance, there is a corresponding possibility that such an artisan would not even have considered nonionic surfactants having a molecular weight of less than 100,000 and would

not have considered that compounds having a MW of less than 5000 could be viable alternatives, much less the specific groups of surfactant compounds recited in each of the independent claims.

The Applicants suggest that trying to stretch Yoshida's disclosure in this way actually could be used to define the term "undue experimentation." The teachings of Yoshida cannot, therefore, fairly be said to provide one skilled in the art any measure of guidance toward the claimed nonionic surfactants and does not support a "reasonable" expectation of the success of such a venture.

The Applicants also note that the fact that a claimed species or subgenus may be encompassed by a prior art genus is not sufficient by itself to establish a *prima facie* case of obviousness. *In re Baird*, 16 F.3d 380, 382 (Fed. Cir. 1994); *In re Jones*, 958 F.2d 347, 350 (Fed. Cir. 1992). The Applicants maintain that the broad "Markush-type" disclosure in Yoshida's Abstract of a dispersing agents that "is at least one of a water soluble organic polymer, water soluble cationic surfactant, a water soluble nonionic surfactant, [and] a water soluble amine" does not constitute a teaching of the claimed surfactant species. A highly remote chance that one skilled in the art relying on Yoshida might, eventually, stumble across one of the claimed polymers is not the standard required for a rejection under 35 U.S.C. § 103.

Accordingly, the Applicants maintain that Yoshida does not disclose, teach or suggest the limitations of claims 1-11, 15-17 and 29-31, and does not, therefore, support a rejection under 35 U.S.C. § 103(a).

The Applicants request that this rejection be reconsidered and withdrawn accordingly.

### **Unexpected Results**

With respect to unexpected results attributable to the claimed compositions, the Applicants submit that such results are disclosed in the Specification, see paragraphs [0039-0042] in which the addition of only 0.02 vol% of an inventive surfactant to a conventional slurry (which already included a surfactant/dispersant package) was shown to reduce cupping of a polysilicon region by more than 90%.

### **CONCLUSION**

In view of the above remarks and amendments, the Applicants respectfully submit that each of the pending objections and rejections have been addressed and overcome, leaving the present application in condition for allowance. A Notice to that effect is respectfully requested.

In the event that each of the claims presently under consideration, specifically claims 1-3, 5-11, 15-17 and 29-31, are deemed allowable, the Applicants expressly authorize the Examiner to cancel withdrawn claims 12, 13, 18-27 and 32-38 in order to place the application in condition for allowance.

If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to contact the undersigned.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY & PIERCE, PLC

By

John A. Castellano, Reg. No. 35,094

P.O. Box 8910  
Reston, VA 20195  
(703) 668-8000

JAC/GPB